June 26 2015

UPDATE FOR FOOTHILL TRANSIT EXECUTIVE BOARD

PROTERRA

AGENDA

PROTERRA

June 26, 2015

1. **EV TRANSIT UPDATE**
2. **PRODUCT DEVELOPMENT**
3. **FACTORY PROJECT**

THE LEADERS IN EV TRANSIT

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20k GALLONS FUEL SAVED PER WEEK

4.5 MILLION LBS. EMISSIONS ELIMINATED

1.2M REVENUE MILES

CURRENT CUSTOMER BASE

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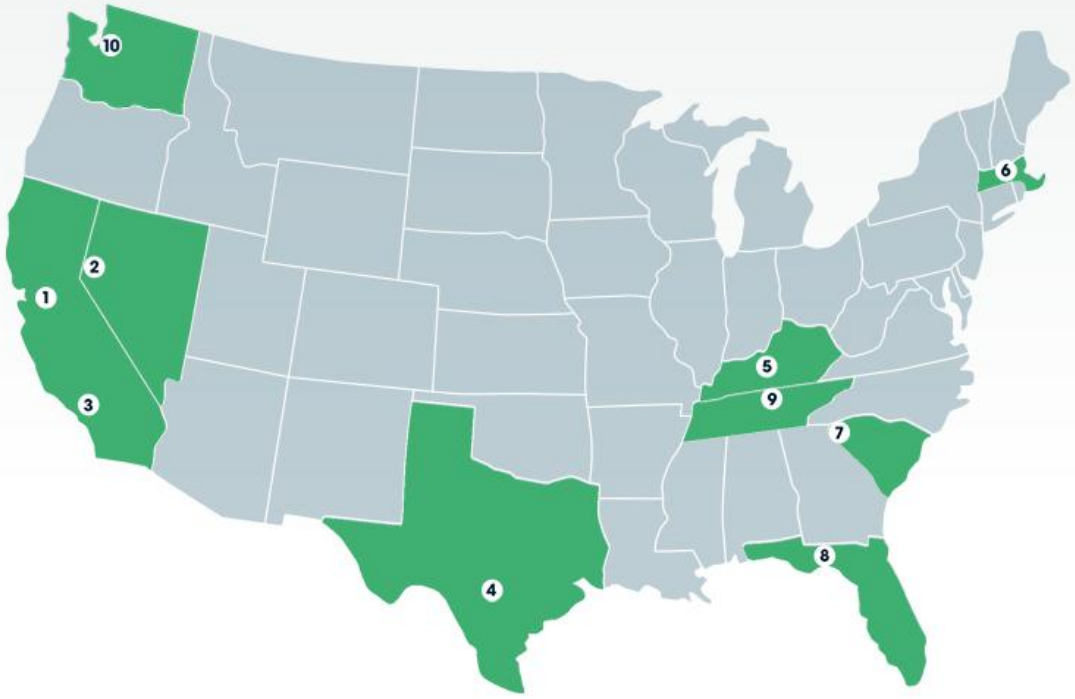

SAN JOAQUIN RTD
★
1 ELECTRIC FLEET: 2 35-ft BUSES

WRTA
★★
6 ELECTRIC FLEET: 6 35-ft BUSES

RTC
★
2 ELECTRIC FLEET: 4 35-ft BUSES

CITY OF SENECA SOUTH CAROLINA
★★
7 ELECTRIC FLEET: 5 35-ft BUSES

Foothill Transit
★★★
3 ELECTRIC FLEET: 15 35-ft BUSES

starmetro
★★
8 ELECTRIC FLEET: 5 35-ft BUSES

VIA Metropolitan Transit
★
4 ELECTRIC FLEET: 3 35-ft BUSES

Nashville MTA
★★
9 ELECTRIC FLEET: 7 35-ft BUSES

tarc
★
5 ELECTRIC FLEET: 9 35-ft BUSES

★ = 1 Order

400 Contracted / 100 Ordered / 60 Delivered

LATEST DEPLOYMENT - LOUISVILLE, KENTUCKY

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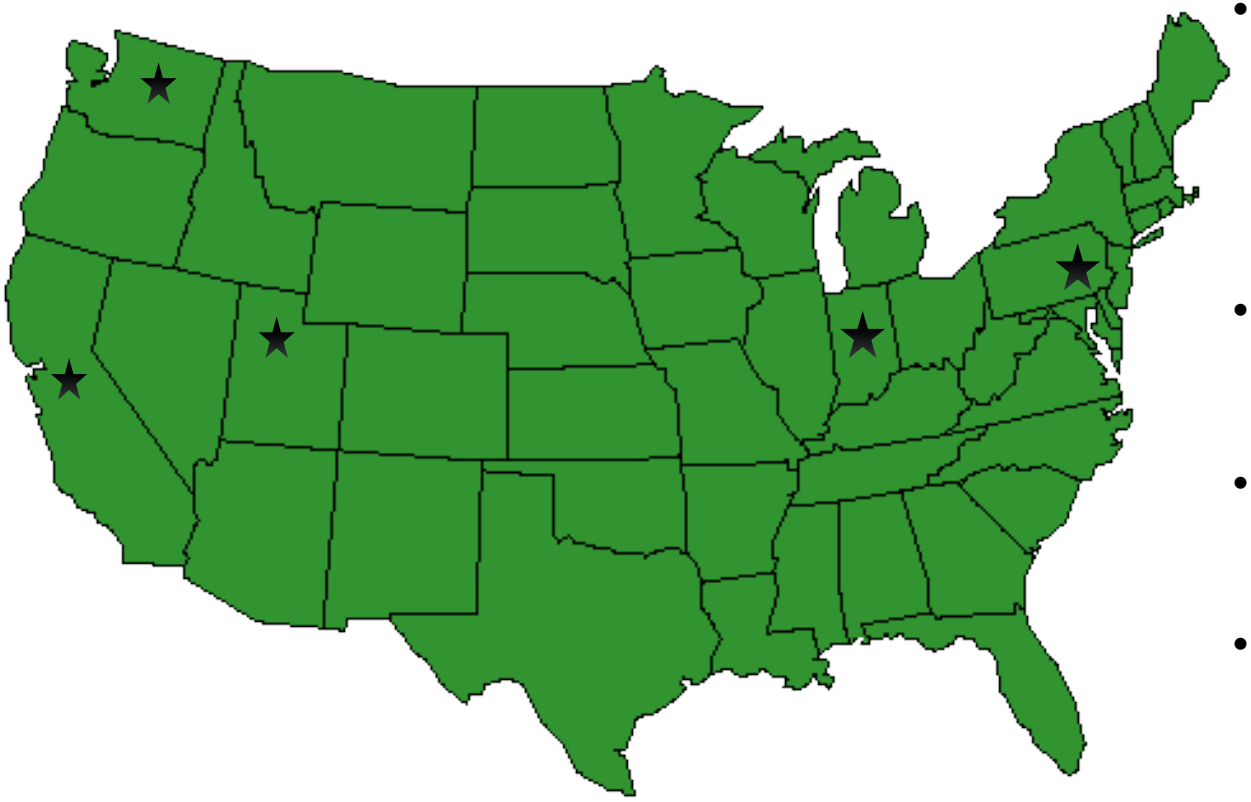
Transit Electrification Developments Across the US



- Indianapolis E-Bus Rapid Transit plans electrification of its biggest and most traveled corridor

- Washington has draft rules open for comment requiring local governments to purchase ZEB for transit if lifecycle cost ≤ Hybrid.
- California has moved from a 2012 Fuel Cell focus to a 2015 Battery Electric focus.
- California plans to have 100% Zero Emission buses by 2040 or sooner.
- Utah Transit Authority plans to convert 1/3 of their fleet to EV in near term, with 100% of purchases being EV within 10 years.
- Philadelphia's 10-year plan is to electrify its entire transit bus fleet.

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RECENT DEMOS AND MEETINGS

Bremerton, WA
Spokane, WA
Richland, WA
Reno, NV
Missoula, MT
Roaring Fork, CO
Vail, CO
Steamboat Springs, CO
Denver, CO
Houston, TX
Austin, TX
Fort Worth, TX
Dallas, TX
Orlando, FL
Tallahassee, FL
Atlanta, GA
Greenville, SC
Charlotte, NC

Silver Springs, MD
Largo, MD
Washington, DC
Baltimore, MD
Philadelphia, PA
Albany, NY
Boston, MA
Worcester, MA
Amherst, MA
Hartford, CT
Salt Lake City, UT
Pomona, CA
Portland, OR
Eugene, OR
Sacramento, CA
Stockton, CA
Oakland, CA
Modesto, CA
San Jose, CA

Santa Cruz, CA
Visalia, CA
Santa Barbara, CA
Montebello, CA
Culver City, CA
Santa Clarita, CA
San Bernardino, CA
San Diego, CA
Palm Springs, CA
Las Vegas, NV
Los Angeles, CA
Orange, CA

New Regulations and Policies Accelerating EV Adoption

- **CA Governor 2015 Executive Order to reduce GHG emissions by 40% and petroleum use by up to 50% by 2030**
- CA 2015 ZEV Action Plan calls for expansion of use of zero-emission buses in public transportation; possible tax relief on purchase of heavy duty ZEV
- **ARB's Advanced Clean Transit *Draft* Rule Language - goal of complete fleet transition to zero emission technologies by 2040; bus mandate to start in 2018**
- $**2.2 billion available in Cap and Trade funding; CA Governor recently allocated $350M for Low Carbon Transportation to Air Resources Board (up from $200M)**
  - **Add'l $5M for HVIP Program (total of $10M)**
  - **Add'l $20M for Bus Pilot Deployments (total of $45M; now separate from trucks)**
- CEC has 2 significant funding programs: (i) AB 118 - ~$100M each year for vehicle deployment, mfg. and charging infrastructure; (ii) EPIC program - ~$162M each year to fund applied research and development, technology demonstration and deployment for clean energy technologies
- **5312 (NoLo funding): expect minimum of $26M in 2015**
- **Proterra and FHT were speakers at Senate Banking Committee on Advanced Transit Technology**

EV TRANSIT IS A CLIMATE SUSTAINABILITY STRATEGY

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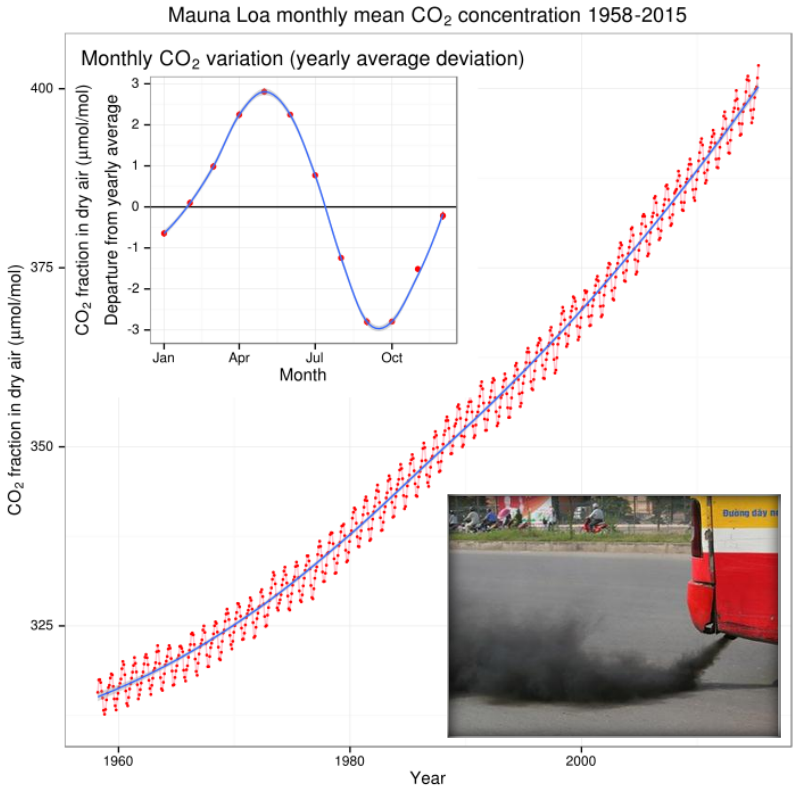

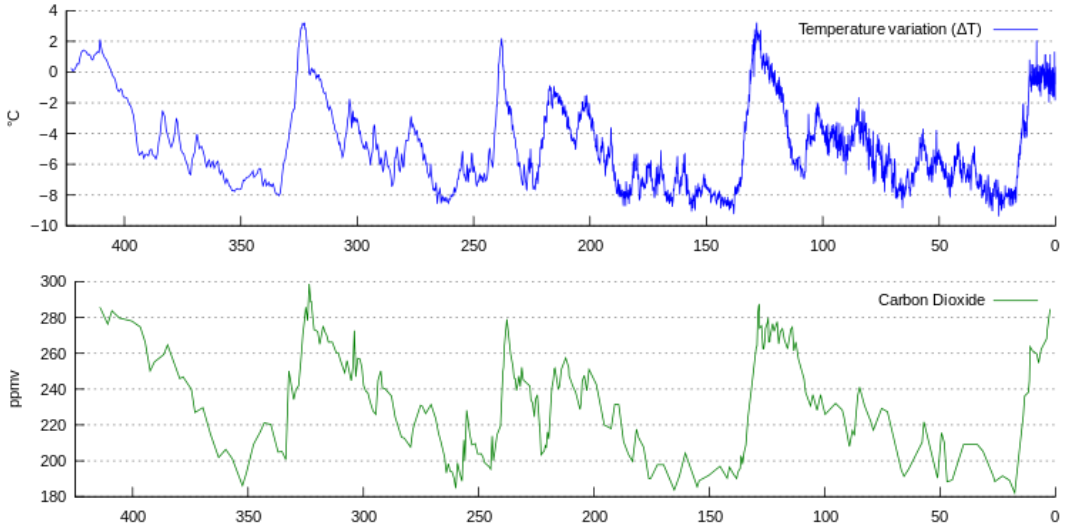

1.) Fossil Fuel Emissions Cause Global Warming
2.) Climate Policy is Accelerating
3.) Transit will either lower its Fossil Fuel consumption by Innovation or Regulation

ENERGY EFFICIENCY GAINS AND ENVIRONMENTAL BENEFITS

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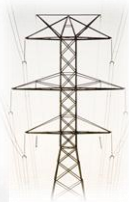
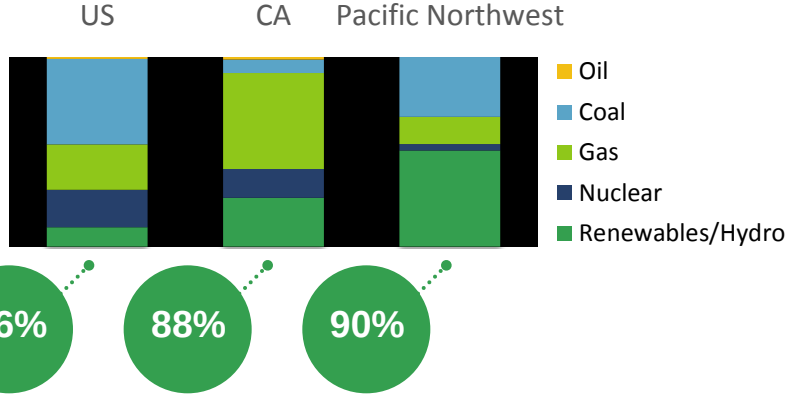
80%

ENERGY SAVINGS PER MILE



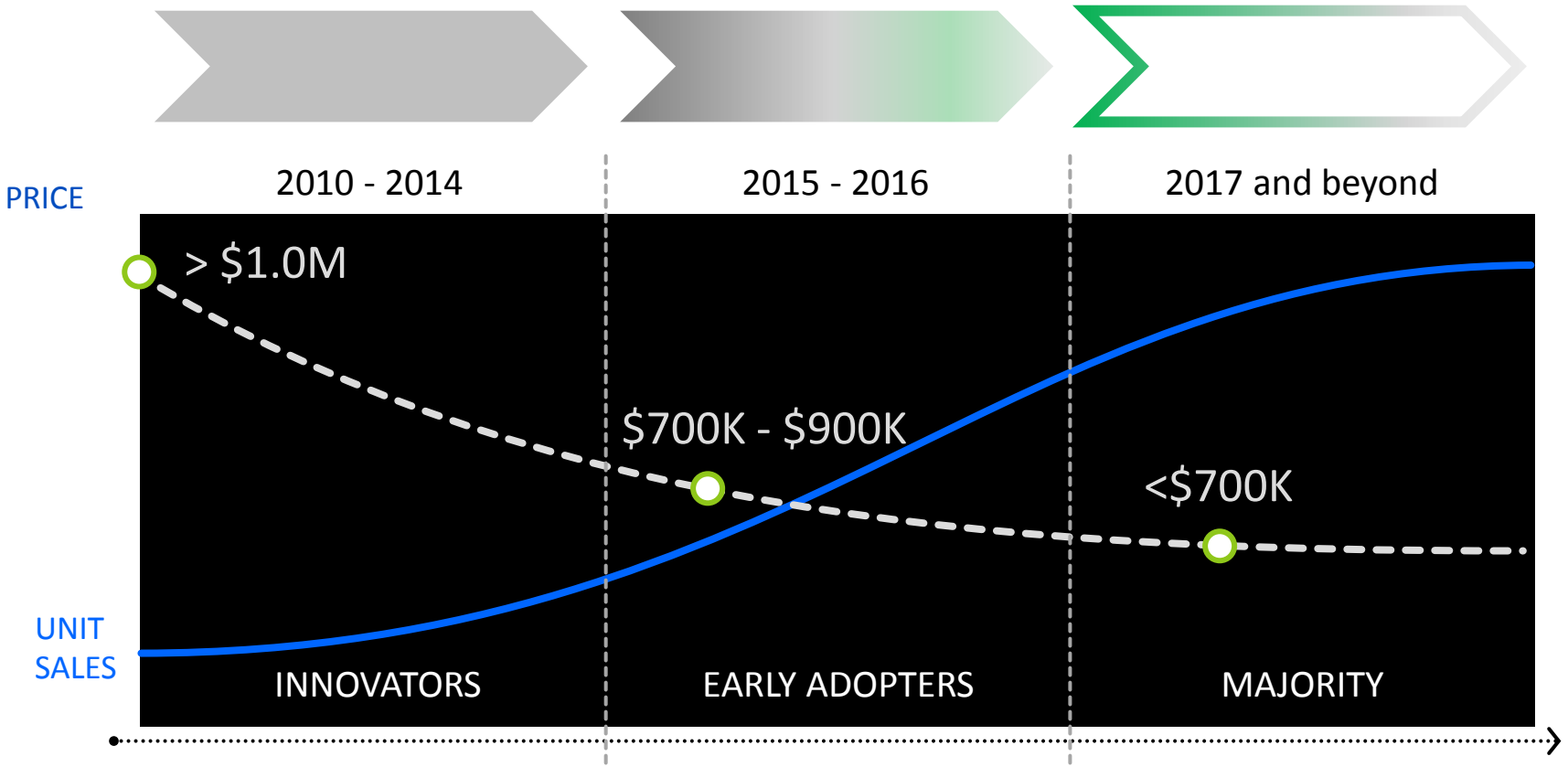
ELECTRIC BUS
(2 kWh/Mile)

ELECTRICITY MIX



Net Fossil Fuel Reduction

ACCELERATING MARKET ADOPTION OF EV



- ✓ 1 – 3 units per order
- ✓ Proof of Concept
- ✓ EV specific routes

- ✓ 5 – 20 units per order
- ✓ Range & Charging suffice for most routes
- ✓ EV > 10% of Fleet

- 25 – 100 per order
- Range & Charging sufficient for all routes
- Policy Acceleration
- Price Parity to Hybrid or CNG
- EV > 50% of Fleet

ECONOMIES OF SCALE AND COST REDUCTIONS

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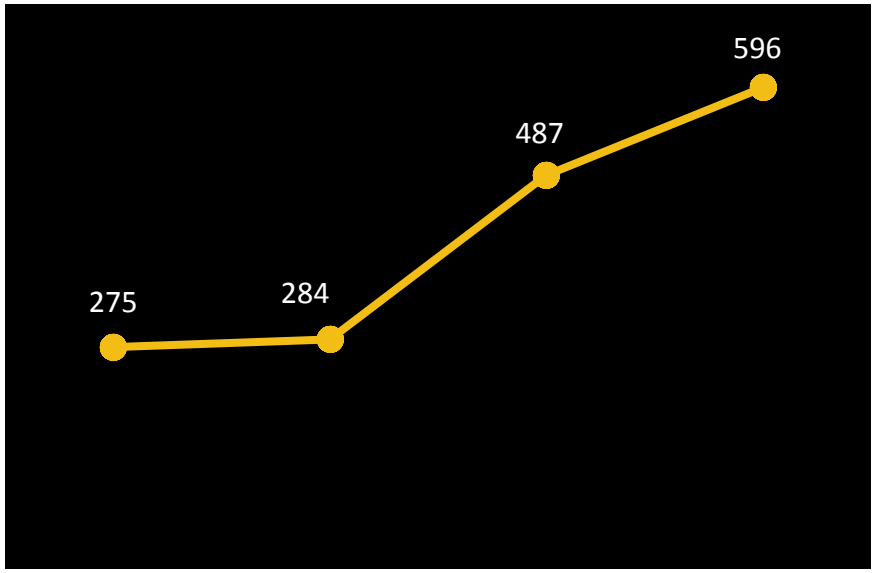
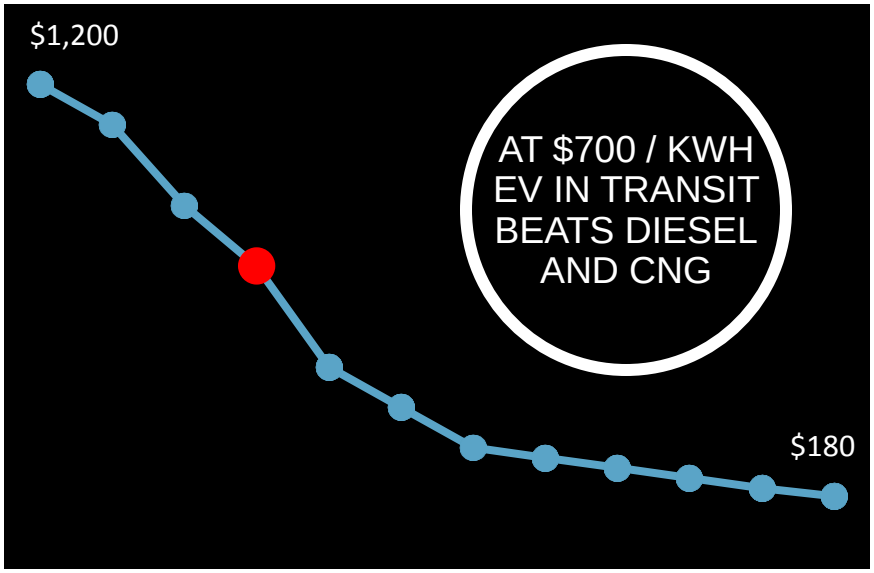
U.S. HYBRID & EV SALES (000s Units)



BATTERY PACK COST ($/kWh)



BATTERY TECHNOLOGY HAS DECLINED IN COST TO ENABLE EV TRANSIT VEHICLE TECHNOLOGY

Sources: Navigant Research, green.autoblog.com, Electric Drive Transportation Association. xEV = PHEV, HEV, EREV and BEV.

TWO POWERFUL FORCES – VEHICLE EFFICIENCY & BATTERY TECHNOLOGY

CURRENT PRODUCT

1st GENERATION

WHERE WE STARTED

Proterra: KWH / Mile	MPG / DGE
1.33	30.50
1.46	27.73
1.61	25.21
1.77	22.92
1.95	20.83
2.14	18.94
2.36	17.22
2.59	15.65
2.85	14.23
3.14	12.94
3.45	11.76
3.79	10.69
4.17	9.72
4.59	8.83

TODAY

<2 YEAR PAYBACK
MARKET GOES 100% EV

Battery Cost, in # Years Energy Cost Savings								
5.9	5.3	4.7	4.1	3.5	3.0	2.4	1.8	1.2
6.5	5.9	5.2	4.6	3.9	3.3	2.6	2.0	1.3
7.2	6.4	5.7	5.0	4.3	3.6	2.9	2.1	1.4
7.9	7.1	6.3	5.5	4.7	3.9	3.1	2.4	1.6
8.7	7.8	6.9	6.1	5.2	4.3	3.5	2.6	1.7
9.5	8.6	7.6	6.7	5.7	4.8	3.8	2.9	1.9
10.5	9.4	8.4	7.3	6.3	5.2	4.2	3.1	2.1
11.5	10.4	9.2	8.1	6.9	5.8	4.6	3.5	2.3
12.7	11.4	10.1	8.9	7.6	6.3	5.1	3.8	2.5
14.0	12.6	11.2	9.8	8.4	7.0	5.6	4.2	2.8
15.4	13.8	12.3	10.7	9.2	7.7	6.1	4.6	3.1
16.9	15.2	13.5	11.8	10.1	8.4	6.8	5.1	3.4
18.6	16.7	14.9	13.0	11.2	9.3	7.4	5.6	3.7
20.4	18.4	16.4	14.3	12.3	10.2	8.2	6.1	4.1

$ / kWh, Automotive Grade Battery Pack								
$1,000	$900	$800	$700	$600	$500	$400	$300	$200

ASSUMPTIONS

VEHICLE	
Miles / Year	40,000
Miles / Day	133
ELECTRICITY	
BTU/KWH	3,414
ENERGY COSTS	
Diesel/Year	$30,000
Electricity	$0.10

DIESEL	
MPG	4.00
$/Gallon	$3.00
Gallons/Mile	0.25
$/Mile	$0.75
BTU/Gal	138,490
BTU/Mile	34,623

TRANSIT FLEETS WILL SOON BE PURCHASING THEIR LAST COMBUSTION ENGINE VEHICLES

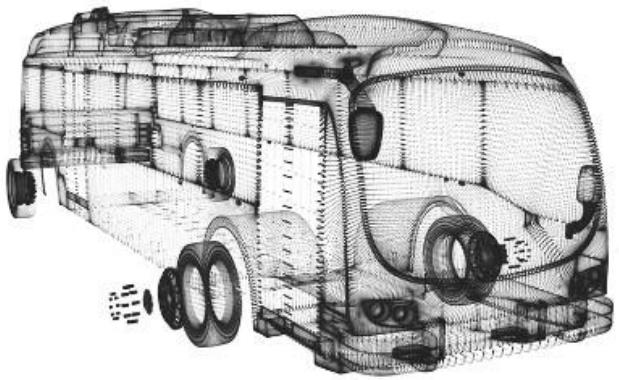
PRODUCT DEVELOPMENT UPDATE

PROTERRA

Proterra's use of advanced composite materials makes the Proterra **Catalyst™** the lightest, most efficient transit vehicle

Lightest 40' transit vehicle on the market

- Increased passenger capacity – 77 total
- Lowest rear axle weight in industry
- Less damage to roadways



Most efficient in its class

- >15% more efficient than any other in industry
- Longest range per kWh of energy storage
- Lowest fuel cost per mile
- 1.7 kWh/mile

Highly durable for **greatest safety**

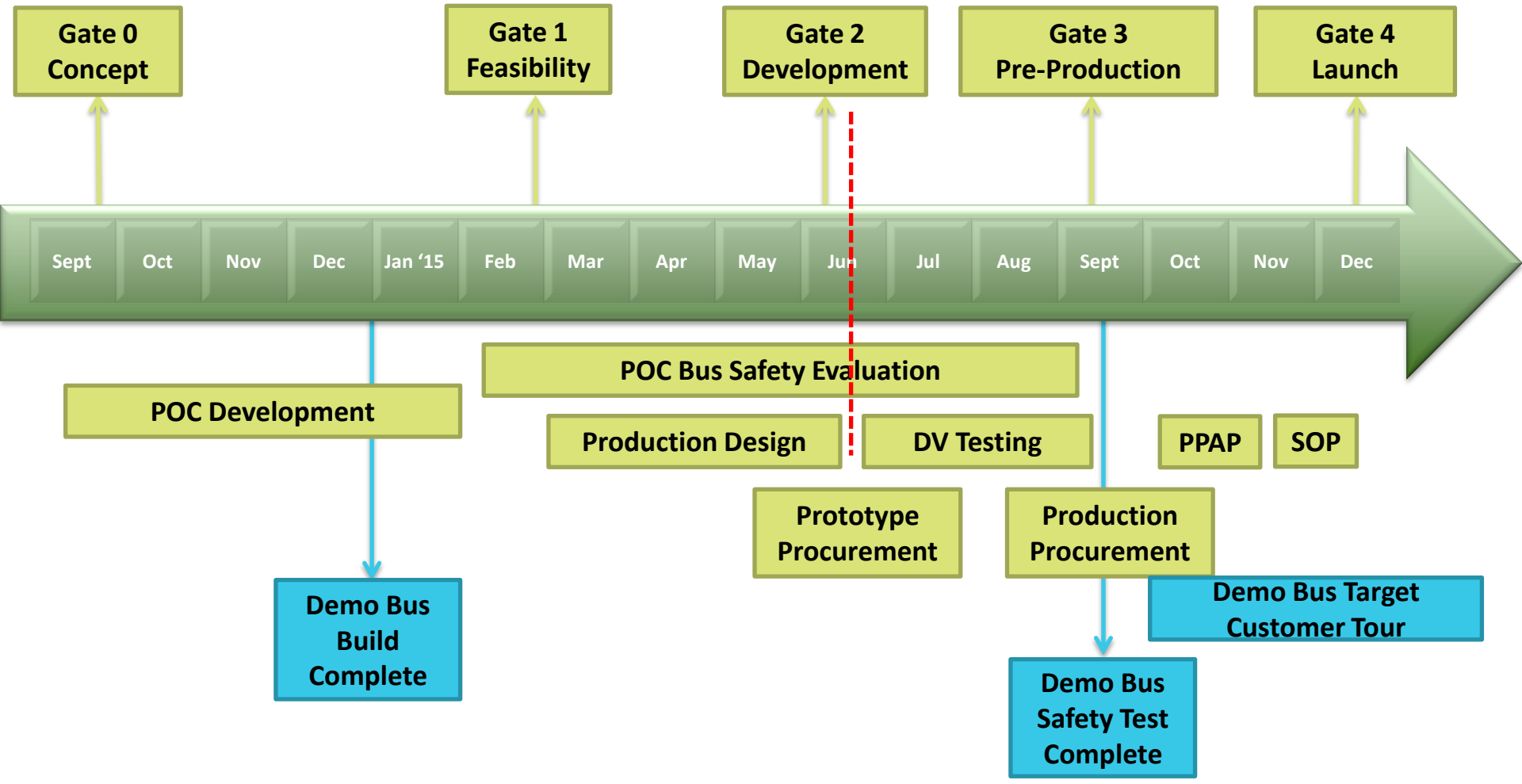
- Advanced carbon fiber composite material: used in Formula 1 race cars with proven durability
- Strong, lightweight and impact-resistant
- Non-conductive and rust-resistant

ALTOONA TESTING SUMMARY

	Proterra EcoRide 35’	Proterra Catalyst 40’
Acceleration (0-50)	47.57 s	39.54 s
Grade-ability	10.6% max	15.5% max
Curb Weight	27,680 lb	27,370 lb
Interior Noise	51.5 dB, 72.4 dB	46.3 dB, 70.4 dB
Exterior Noise	60dB	66dB
Body Structural Type	Composite	Composite
Passenger Seat Capacity	34 seating	41 seating
Energy Consumption (avg)	1.73 kW-hr/mile	1.70 kW-hr/mile
Fuel Economy	21.75 Diesel MPGe	22.16 Diesel MPGe
Range	32.5 miles	38.6 miles
Class 1,2,3,4 failures	0,2,26,10=38	0,1,24,8=33
Braking distance @45mph	171.23’	173.46’
Acceleration (0-20 mph)	6.8 s	6.7 s




Catalyst XR (Extended Range) - Program Timing



Catalyst XR (Extended Range) Testing

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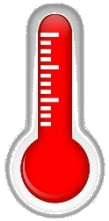
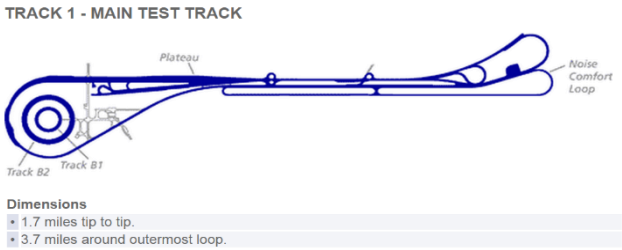
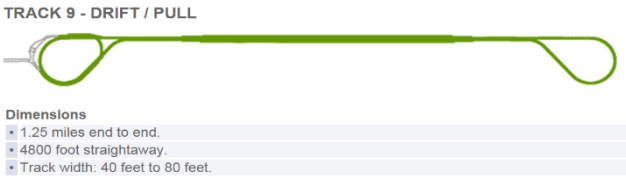
- Prototype testing conducted locally at Michelin US proving grounds in Laurens, SC
  - 2 range tests
    - 8-Pack XR (257 KWH Energy)
    - **220 mile** range on standard tires (80% SOC, with efficiency upgrades)
    - **264 mile** range using Michelin LRR tires (92% SOC)
  - 2 energy consumption tests
    - Running Central Business District, Arterial and Commuter drive cycles @ seated load weight
  - 3 coast-down tests
    - SAE J2263 specified
    - Michelin OE tires
    - Michelin LRR tires
    - Goodyear tires



Average ambient temp throughout testing was *95° F*





VERY SOON, RANGE WILL NOT BE A LIMITING FACTOR

SOUTHERN CALIFORNIA PROJECT TIMING

Q2 2015

May ’15: Lease Signed

Q3 2015

Sept ’15: Occupancy

Q4 2015

Q4 ’15: Begin Service Operations

Q1 2016

Q1 ’16: Begin Production

Landlord making improvements: widening bay doors & office upgrades

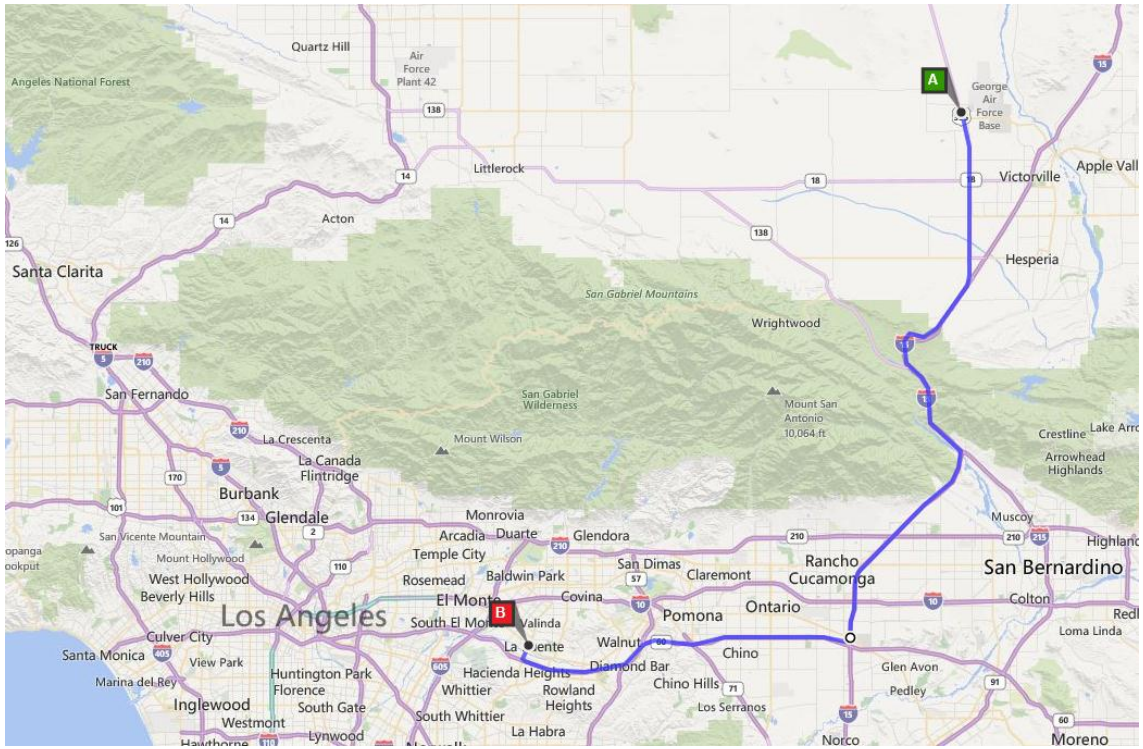
Delivery and installation of production equipment and tooling

SOUTHERN CALIFORNIA MANUFACTURING UPDATE

- Located on Cheryl Lane, City of Industry (previously a lighting manufacturer)
- 157,500 sqft - includes office, manufacturing, service and warehouse space
- California Energy Commission Grant ($3,000,000) Approved, Feb 2015
- Private Capital Investment ($5,000,000) Secured, June 2015
- Proterra executed lease May 2015 and will take occupancy on September 1, 2015

LOCAL SUPPLY CHAIN DEVELOPMENT UNDERWAY

- Adelanto, CA
- 70,000 square feet of manufacturing floor space
- 73 miles from City of Industry
- Facility has been producing Fiberglass Reinforced Plastic since 1992
- Parent company founded in 1948
- 100 employees in CA
- 20 new jobs near-term; long-term potential approximately 170



CONCLUSIONS

PROTERRA

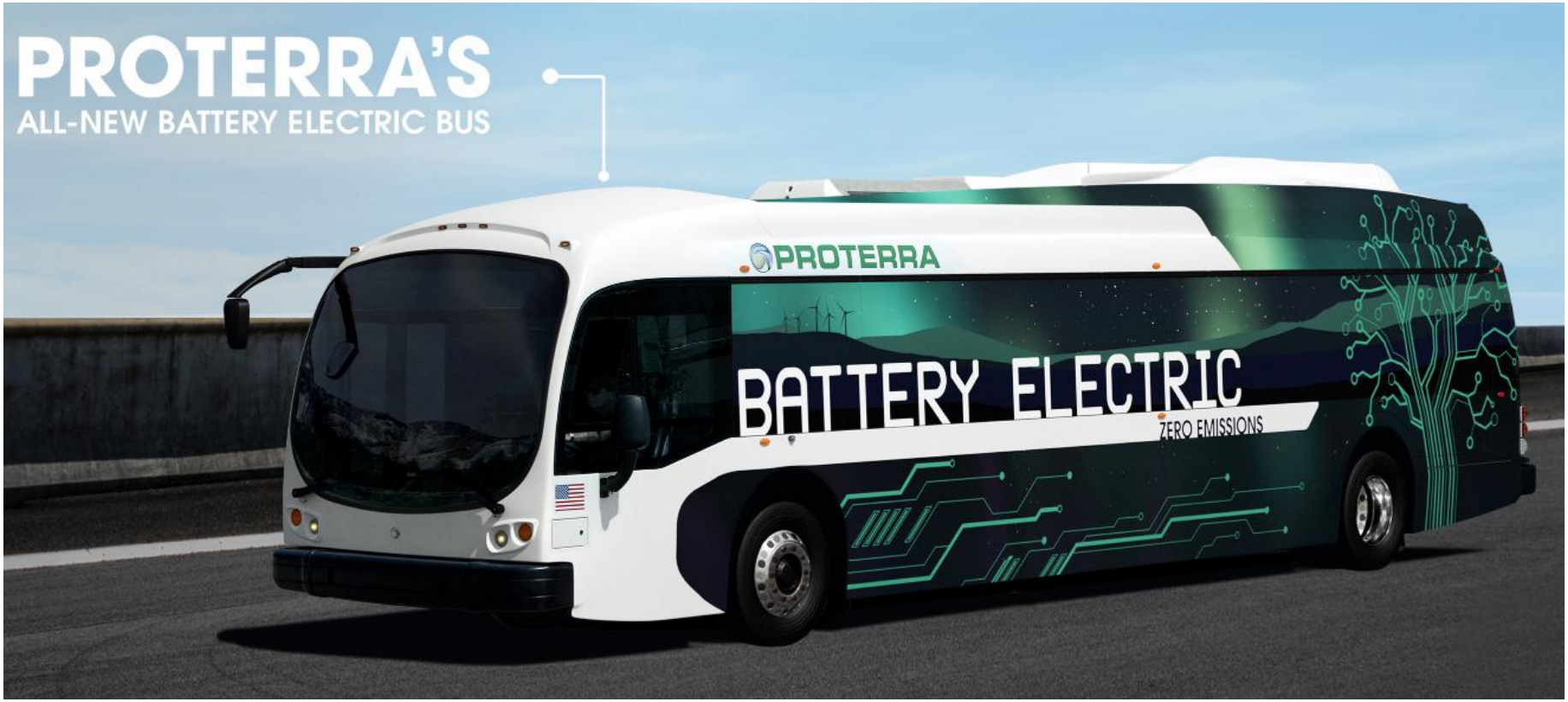
June 26, 2015

1. **EV TRANSIT MARKET HAS ARRIVED**

2. **TECHNOLOGY RAPIDLY MATURING IN BOTH COST AND CAPABILITY**

3. **LOCAL FACTORY DEVELOPMENT ON SCHEDULE FOR 2016 PRODUCTION**

Phil Kelly



THANK YOU

CLEAN, ADVANCED TRANSPORTATION FOR ALL